

REMARKS

In order to expedite prosecution of this application, independent claims 1, 19 and 23 have been amended, claims 2, 20 and 24 have been cancelled, and claims 3, 21 and 25 have also been amended. Reconsideration and allowance of the application as amended are respectfully requested.

The present invention concerns a novel bi-directional steerable guidewire having a deflectable tip. The guidewire of claim 1 comprises an elongated flexible tubing having proximal and distal portions. A flexible helical coil is provided, having multiple turns and having proximal and distal ends. The helical coil has a rectangular cross sectional configuration and has continuous undulations. The undulations of adjacent turns interlock with each other in order to enhance the rotational rigidity of the coil. The proximal end of the helical coil is attached to the distal portion of the flexible tubing.

The undulations are lateral to the length of the elongated flexible tubing. The undulations take the form of a sinusoidal wave having positive and negative peaks. The positive peaks of adjacent turns of coils engage negative peaks of adjacent turns of coils.

An elongated deflection member is provided, having proximal and distal portions. The deflection member is slidably disposed within the tubing and within the helical coil. The distal portions of the deflection member are flattened to form a deflection ribbon which extends in a plane.

A retaining ribbon for the steerable guidewire is provided. The proximal end of the retaining ribbon is attached to the distal portion of the flexible tubing. The retaining

ribbon is oriented to extend in a plane which is generally parallel to the plane of the deflection ribbon.

An attachment member for the steerable guidewire is provided. The attachment member engages the distal end of the helical coil, the distal portion of the deflection member and the distal end of the retaining ribbon. In this manner, longitudinal movement of the deflection member in a distal direction causes the distal end of the helical coil to be deflected in one direction, and longitudinal movement of the deflection member in a proximal direction causes the distal end of the helical coil to deflect in another opposite direction.

The Hayzelden et al. reference, applied by the Examiner, is not apposite. Hayzelden et al. does not concern a bi-directional steerable guidewire. Instead, the Hayzelden et al. reference concerns an ablation catheter having electrodes and lacking many of the claimed attributes of applicants' steerable guidewire.

All of applicants' claims make it clear that applicants' invention is a steerable guidewire, not an ablation catheter which serves an entirely different purpose and is structurally significantly different.

In addition to not being a steerable guidewire, element 82 of Hayzelden et al. is not "a flexible helical coil" as indicated by the Examiner but is instead a wire braid which is structurally and functionally significantly different from a helical coil. Element 54 of Hayzelden et al. is not "a retaining ribbon" as indicated by the Examiner but is instead a steering tendon. Hayzelden et al. does not disclose "a rounded bead" as indicated by the Examiner because such a rounded bead, as claimed by applicant in claim 19, is not anywhere present in Hayzelden et al.

In short, in addition to not disclosing a steerable guidewire as claimed by applicant, the Hayzelden et al. ablation catheter lacks many of the claimed elements of applicants' steerable guidewire. Apparently recognizing certain deficiencies of Hayzelden et al., the Examiner has combined Hayzelden et al. with Klima et al. However, Klima et al. is not a steerable guidewire but is instead a catheter having an open proximal end and an open distal end. The Examiner points to certain figures of Hayzelden et al. which the Examiner contends show continuous undulations taking the form of a sinusoidal wave. However, contrary to the indication by the Examiner, the positive peaks of adjacent turns of the coils of Klima et al. do not engage the negative peaks of adjacent turns. In fact, the adjacent turns of Klima et al. are expressly separated by a slot 1084 (Figs. 14A-14B) which is filled with the material that forms the outer jacket. Serpentine slot 1084, which expressly separates the positive peaks of adjacent turns from the negative peaks of adjacent turns is a significant aspect of Klima et al.'s disclosure and is discussed in most detail in column 10, line 64 to column 11, line 21 of Klima et al. It can be seen that Klima et al. actually teaches away from having the positive peaks of adjacent turns of coils engage negative peaks of adjacent turns.

All of applicants' claims have been carefully amended to distinguish applicants' novel invention from the prior art references whether taken singly or in combination with each other. In view of the foregoing amendments and remarks, the Examiner is requested to withdraw the rejections and pass the application to issue at an early date.

If for some reason the Examiner does not consider the application to be in condition for allowance, he is requested to telephone the undersigned counsel for applicant prior to mailing an office action.

Respectfully submitted,
SEYFARTH SHAW LLP

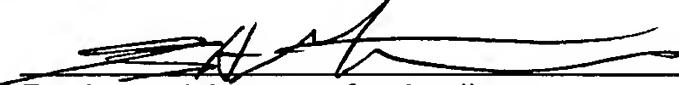


George H. Gerstman
Registration No. 22,419
Attorney for Applicant

SEYFARTH SHAW LLP
131 S. Dearborn Street, Suite 2400
Chicago, Illinois 60603
(312) 460-5567

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Registered Attorney for Applicant
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